MULTIPERSONALITY AUTOMATED TRANSACTION EXECUTION SYSTEM WITH MACRO ACCOUNT

The present invention relates to transaction execution systems.

BACKGROUND OF THE INVENTION

Banks and similar financial institutions have used automated teller machines, otherwise known as ATMs, for many years. Initially, each traditional institution installed its own ATMs (captive ATMs) at bank branches and other locations. These captive ATMs initially varied in level of functionality, but over time evolved to provide more services at lower costs, greater convenience, and greater access to the customers. The services typically offered by captive ATMs include cash withdrawals, limited transfers between some customer accounts, the ability to deposit items of value such as cash or cheques, and checking of account balances in accordance to the generating parameters of a single financial institution. One disadvantage of this ATM system is that each institution has only a limited number of physical ATM locations with which to service a broad customer base.

Institutions have also begun to use captive ATMs to obtain data on customer habits, and to customize the behavior or options offered by a captive ATM based on how the institution wishes to treat a selected customer group or specific customer. A key to offering these value added and/or differentiating services has been the ability of the traditional financial institutional to control the behavior of the captive ATMs used by its customers. The control is typically accomplished by the financial institution owning and/or operating, and defining many or all aspects of the logic, presentation, communications, performance, appearance, electronic transactions, paper transactions, cash type, denominations, and many other aspects of the captive ATM operation. The disadvantage of this system is the limited coverage of a customer base, dependent on the number and location of the ATMs, with the associated costs of establishing and maintaining a network of captive ATMs.

As ATM usage grew, so certain traditional institutions saw advantages in providing their customers with access to additional ATMs not owned by themselves. Regional or national consortia were created amongst cooperating traditional institutions, as well as amongst independent providers, to provide user access to each other's ATMs by their

respective customers. Because of the need for technical simplicity and compatibility, these cooperative ventures tended to be based on the lowest common denominator of ATM capability, typically cash withdrawal from one or a limited number of generically defined account types, typically "savings" and "chequing". Additional features included balance inquiry and/or inter-account transfers for similar generically defined accounts. Examples of these consortia are "Interac", "Visa Plus Network", "MasterCard Cirrus Network", and "Star/Honor" systems. These particular networks were primarily interested in the basic functionality of cash withdrawal in local currency, by using internationally recognized credit or bank cards in a large number of locations. Unfortunately, the full complement of transactions ordinarily provided by captive ATMs are not typically accessible by customers using the ATMs not owned by a customer's institution. Another disadvantage of the consortium branch system is that ATMs are always driven by one "host" institution, whereby the transactions to other "guest" institutions are controlled. Accordingly, this ownership model may not give "guest" institutions adequate control on how the captive ATMs provide services to their customers.

As the usage of ATMs grew and the networks used to exchange ATM transaction information between traditional institutions became more widely accessible, so an opportunity arose for ATMs not owned by any single financial institution, commonly known in the industry as "White Label" ATMs. White Label ATMs were attractive to retail merchants and similar enterprises, whereby customers able to withdraw cash on the merchant's premises would be more likely to enter the premises and or spend more money while on the premises if they made a cash withdrawal. One disadvantage is that these White Label ATMs have only a limited functionality, as compared to captive ATMs controlled by single institutions.

Presently in the art, there is a proliferation of limited service ATMs. Full service is only available from captive ATMs, controlled by the traditional institution issuing the access means such as a transaction card. Very limited services at White Label ATMs are available at a very large number of other locations by means of the many interconnected financial transaction networks.

While the importance and numbers of both full service and White Label ATMs have been growing, the importance and desirability of traditional bricks-and-mortar bank branches

has been declining. New virtual banks have been created that are based on a very limited traditional branch network, sometimes with no physical branch network at all. These virtual banks typically use the Internet, a telephone call center, and/or a telephone interactive voice response system to conduct transactions with their customers. However, for any transaction requiring physical interaction between the virtual banks and their customers, such as the withdrawal of cash, the virtual banks have had to rely on the general ATM network. The access of virtual institutions to the established ATM network is through the lowest common denominator functionality, which is owned by traditional institution competitors, or by White Label ATM providers and/or operators. These virtual banks would like to position themselves as leaders in technology, convenience, and low cost transactions, but existing access to current networks' ATM is restricted in terms of the transaction types permitted to customers of "foreign" institutions. These available transaction types are typically fixed by the operator of the network, by which the ATM is controlled. Furthermore, there is very little in the way of providing these virtual banks with any control over the interface during their customers' interaction with existing systems. The virtual banks have to rely on the visual presentation and transaction capabilities provided by the general ATM network.

For additional transaction types, such as the issuance of a certified cheque, or the deposit of funds via cheque or other negotiable paper instruments, the virtual institution is typically restricted to using the post mail system, or using the premises or facilities of another more traditional bank. Examples of this practice are PC Financial offering additional transaction types through CIBC terminals, and MBanx making similar arrangements available through the terminals of the Bank of Montreal. This procedure can be costly, cumbersome, and slow compared to the service level such virtual banks wish to provide, and which their customers should expect. These virtual banks are able to control the remote interface and interaction with their customers when dealing with the customers by telephone or by the internet, but must subject their customers to the image and advertising of competing traditional institutions when their customers use the ATMs controlled by a single traditional institution. When their customers use White Label ATMs, those customers are typically provided with less functionality, such as cash withdrawal, and with no opportunity available to those institutions to control presentation of the transaction with those customers.

ATM networks are increasingly enabled to provide user access across foreign networked ATM devices. In the current paradigm of single ownership institution control

over network ATM functionality, and inter-network co-operation by consortia of ATM-owners, there is limited adaptability except by prior arrangement and agreement and with the performance of some technical work between each network of ATMs for inter-network operability of additional transaction types. Thus, if one institution adds a function, such as to provide mortgage balances, no foreign institution can access that function, except by separate arrangements, agreements, and the performance of additional technical work with respect to data, protocol, transaction message formats, meaning and dialog, and the like. As well, when a foreign institution desires to provide capability not currently provided by the ATM operating institution, it is not possible to implement save with such specific prior arrangements and agreements and technical system change work to also implement protocol, transaction message formats and content meaning and dialog and the like.

In addition, for an institution that may want to attract customers over a large geographic area, an adequately large network of ATMs that may be required to obtain this goal is not economically feasible. Furthermore, there are a limited number of desirable locations in which to situate ATMs and therefore an insufficient number of suitable physical locations to permit the creation of independent, distinctive ATM networks for every institution.

SPECIFIC DISCUSSION OF THE PRIOR ART

Internet Engineering Task Force Request for Comments Re: Card-based numbers:

IETF materials published on the world wide web beginning in August 1998, authored by Donald E. Eastlake 3rd for IBM under the title "ISO 7812/7816 Based Card Numbers and the Domain Name System (DNS)" with file name "draft-eastlake-card-map-0X.txt" (where X is the version), propose to utilize the DNS standard for providing for lookup of IP addresses based upon information derived from the ISO standard bank-card and smart-card numbering schemes and the card number. This proposed scheme relates a portion of the card or smart-card number to the IP address which could provide utility to the card-issuer, which includes by the examples given in the proposal the provision of access to security authentication keys (e.g. The SET system of card authentication provided by agreement amongst VISA, MasterCard and others) and other similar information. It may be possible to provide ".gif" (USA 1948110 TM CompuServe Incorporated Corporation) image files of logos at an

extension to such a derived IP address, if the proposal were implemented and the various banking institutions and card-issuers in turn implemented the scheme into appropriate DNS servers and their web content server devices and if some standard protocol were built and embedded in the "seeking" device. The scheme deals only with a proposal to provide a means of deriving a card-issuer-related IP address from the card's number. This only provides for indirect addressing means and may require adoption of the proposed standard by a significant number of unrelated third parties to be useful in the marketplace. The IETF materials leaves the problem of the provision of a complete addressing means to refer a customer to his home institution's interface unanswered, and does not address other above-mentioned problems related to existing ATM systems.

Huntington Bancshares US Patent Nos. 5,787,403 and 5,899,982 entitled "Bank-centric Service Platform, Network and System":

A number of US patents have issued for Huntington Bancshares, notably US Patent No. 5,787,403 ('403), which discusses the shortcomings in the art prior to that invention caused by a proliferation of financial and non-financial services available to a bank's customers through electronic means, which erodes the ability of a bank to perform its transactions with its own customers while maintaining its own image with those customers. The solution provided by the Bancshares '403 patent is to insert the financial institution's identity into each interface or screen provided to the user, in transactions electronically done with the bank, and to the user at each interface provided to deal with other service providers accessed by the user during contiguous or related transactions in a transaction session. The '403 patent proposes adding a gateway to the bank's main computer systems to provide a bank-centric communications method to the bank's customers, enabling that bank's identity to be inserted and maintained over the course of a user's transaction session, which session might also include transactions with other service providers, thus ensuring a link to the bank in the customer's mind associated with the provision of the bank's services. Although this invention deals with bank-centric identification, it deals only with SINGLE-bank-centric solutions. This invention points to a difficulty in the prior art of maintaining a bank's identity during a transaction with its own customers through electronic means, such as, it is presumed, by White Label ATMs and by personal computer. The teachings of the '403 patent try to resolve the presentation issue on a bank-by-bank basis, with a scalable single-bank solution, but leaves unanswered the problems related to available numbers of ATMs at large numbers

of locations, logo'd with the user's home institution's trade-mark elements. The '403 patent does not address the above discussed disadvantages of limited physical ATM location, limited transaction types on "host" institution owned ATMs to foreign institution customers, limited transaction capabilities between accounts held at different institutions, adaptability of institution owned ATM networks, and the above discussed needs of virtual banks.

Citicorp US Patent No. 5,933,816 entitled "System and Method for Delivering Financial Services":

US Patent No. 5,933,816 ('816) by Citicorp Development Center, Inc. relates to the provision with a single banking institution's many international branches of location-specific and customer-specific interfaces. Generally, the '816 patent teaches a delivery system for financial services capable of providing uniformity across the various remote devices which might be used to access a single bank's system in a variety of locales, in a way that the customer is presented with a consistent and familiar interface. These interfaces are provided by re-useable segmented scalable computer coding means, rules based upon locale of bank branch or customer (relating to banking regulations, currency denominations, rules with respect to deposits and withdrawals limits, and the like), and rules based upon local language with the ability to interconnect ATMs and other transaction devices (including legacy systems) to a variety of the single bank's computers in a variety of different locales to provide a growing variety of financial services to the bank's customers. By providing re-usable common application code bases for remote devices, the '816 proposes to decrease time-to-implement, testing time, and errors. Again, these teachings are single-bank-centric similar to the '403 system, and provide a modular software approach to support a variety of computing devices with interfaces with which the single bank's customer has some familiarity. The '816 system does not address many of the above discussed disadvantages of the '403 patent.

Discussion of Diebold, Incorporated family of HTML-enabled ATM systems:

There is some discussion in the prior art, in particular within a family of ATM applications made by Diebold (Canadian Patent Nos. 2,271,209 /210 /212-216 /218-220 /222-224 /394 and 686). The disclosures of these patents teach integrating legacy captive ATM systems into a modern network of ATM and similar transaction machines operating

over TCP/IP. These systems provide means of interacting with legacy driver computer systems and legacy ATMs interposing a translation system between the legacy and the modern elements of the network. These applications provide a user-centric system for incorporation into legacy or traditional captive ATM systems to provide for personalization of the user experience with a single institution.

Legacy or traditional captive ATM systems operate on the basis of a network of ATM machines which are made to behave like dumb terminals with attached peripherals and sensors, connected to a driver computer which controls the presentation, transaction logic and sequence, peripheral functionality, and transaction authorizations, and records ATM activity for later accounting purposes. Typically, such captive systems utilize proprietary communications languages and techniques such as Diebold 911/912. One disadvantage with this system is that typically no institution other than the single ATM controlling institution has any direct control over the ATM, and communications with so-called foreign institutions are done through a transaction protocol previously agreed to. These almost always follow a paradigm of "request/response" in a sequential manner, with a multiplicity of small communications in the captive ATM's intranet and between the ATM driver computer and the foreign institution. The subject matter of these transactions deal only with the financial aspects of the transactions, and not with the look and feel of the interface between the customer and the ATM during the transaction. The protocols, languages, and the structure of the system impose many of the limitations in cross-institutional functionality as discussed above.

In one disclosure (Diebold '218), the legacy ATM driver computer issues and receives instructions and information in proprietary format. An http server machine is interposed between the legacy driver computer and the target ATM (which is a web-enabled ATM), and the interposed server machine incorporates a database lookup translation means and communicates translated driver computer information and instructions to the web-enabled ATM over http. In another variant (Diebold '224), a legacy-enabled ATM receives and transmits information via legacy protocols in formats designed to be accepted and acted upon from a legacy driver computer, and responsive thereto. The ATM refers to a further http server to obtain graphical user interface elements particular to that user and from there to that user's preferences. In Diebold '686 there is reference to an HTML-enabled ATM in operative connection with a "home http server", which takes the place of the legacy driver

computer and provides connection with the home institution's back-office operations or with "foreign" institutions.

However, in all Diebold information management systems provided, the ATM obtains the user identity, goes to a user-related home address to pull information with respect to the user and the user's preferences, and provides a user-centric, personalized interface and logic at the ATM during the user's transaction session. These Diebold systems focus on providing a user-centric interface which has similar cross-institutional functionality deficiencies as discussed above, pertaining to the bank-centric models. In addition, these Diebold systems uses a large number of user information "pages" and "addresses", which can generate a great deal of traffic over the network, which typically requires relatively large amounts of secure and accessible storage to accomplish, and as well could result in difficulties providing institution-specific branding where there may be multiple institutions related somehow to one user identity and address.

A divisional application (Diebold '214) and continuance describes a method of responding to a user's card information to lookup user profile and preferences which may include affiliations, and to then provide a user-customized interface at the ATM with which the user is interacting, all over modern networks using http, TCP/IP, and HTML (or similar variant document-based languages), where the user information is stored at an address to provide for personalization of the user experience.

In the Bank-centric and user-centric models discussed above, a user is usually only provided with means of dealing with one institution at a time on an ATM, which does not address a need for performing inter-institutional transactions by a customer. The above systems may provide these transactions as a part of the single ATM-controlling institution's functionality, but this is limited to its captive ATMs. The provision throughout the Diebold descriptions of user-centric data and communications models have numerous disadvantages, which include the need to keep a large number of addresses and volume of information current, accessible, and secure within the system in order that the user-centric locations are useful. Additionally, the systems disclosed are "chatty" and require a large number of inter-component communications steps that could be problematic on low-bandwidth or high-latency communications links or processing machines. As well, the paradigm of user-

centricity may provide for personalization of certain transaction types but could limit the utility of the entire system.

CITIBANK US PATENT NO. 5,963,647

US Patent No. 5,963,647 by Citibank Development Center, Inc. teaches a method and system of transferring funds from a bank account to an anonymous individual. These funds are transferred from the account to a cash access file accessible by use of a set of securely provided codes, which may then be used at any (enabled) ATM to obtain cash (in the source or the recipient's local currency) securely and anonymously. This system provides accounting at the time of cash withdrawal, as well as status inquiries, and cancellation/repudiation. One disadvantage with this system is that cross-institutional functionality, during the same transaction session, are not provided. Furthermore, fund transfers between accounts must be accomplished through an extra intermediate account, and do not reference the user's identity.

It is apparent from the above that there is a need for a transaction execution system that enables financial institutions to provide branded ATM services to their customers with a broad geographic coverage, which may not be economically feasible or technically possible without sharing the implementation costs of the ATM deployment amongst a number of institutions for any but the largest institutions. There is also a disadvantage of prior ATM systems arising from the limited number of full service ATM locations available to any one financial institution.

ATMs not part of any particular "captive ATM network", such as "White Label" ATMs, cannot provide the "full service" capability available on a captive system ATM to a member institution's customers. This situation is undesirable and less than optimal for operators of non-captive ATMs, since fewer transactions can be conducted at their terminals, thus reducing their utility and derived revenue.

There is a need to provide to "virtual banks" a means of interacting with their customers by issuing and receiving physical value items (such as coupons, bank drafts, certification process, deposits) as well as their more usual "electronic banking by PC or phone" services at a multiplicity of ATM locations

It is apparent from the prior art and practice that there is limited cross-institutional functionality in any ATM which limitations are dictated by the structure of the traditional ATM network and inter-network consortia systems of operation (e.g. Interac's hobbled sub-set of transaction types) and the protocols and paradigms they employ.

Further, there are limitations in permitted functionality of ATMs caused by incidental ownership or control over the physical ownership of the ATM or the network or system of which the ATM is a part (during a transaction with a customer) such that fuller use of an ATM may in some cases be restricted to the owner of the ATM.

It is an object of this invention to provide a transaction execution system, method, apparatus and business method, in which the above shortcomings and disadvantages are obviated or mitigated, or in which the above-described needs are addressed.

SUMMARY OF THE INVENTION

There appears to be a need, which is unfulfilled by the discussed prior art, to provide multi-personality branded transaction machines on networks in a manner which focuses on and utilizes member institution branding as a focus, rather than user-centre profile or bank-centric models.

According to the present invention, there is provided a dynamically branded transaction execution system including at least two member institutions; at least one shared TEM, and a processing and routing system to connect and process a plurality of information between a member institution and a user of one of the shared TEMs. The shared TEMs are configured to be responsive to user-provided information to include branding elements appropriate to the TEM under the control of a selected one of the member institutions.

According to another aspect of the present invention, there is provided a method for dynamically branding a TEM, the method comprising the steps of:

a. initiating at the TEM a session between a user and a selected institution from a plurality of institutions, the selected institution including a predetermined branding element;

b. coupling the TEM to the selected institution in response to identification information supplied by the user; and

c. configuring the TEM in accordance with the predetermined branding elements of the selected institution, thereby dynamically branding the TEM with an identity and functionality of the selected institution.

Accordingly to a further aspect of the present invention, there is provided a method for dynamically branding a TEM, the method comprising the steps of:

a. maintaining the TEM in an idle or wait state;

b. providing information to the TEM by a user to initiate a transaction session;

c. operatively coupling the TEM with a selected institution based upon the information, the selected institution including a predetermined set of branding elements;

d. configuring the TEM with the predetermined branding elements of the selected institution appropriate to capabilities of the TEM;

e. allowing the user to conduct the transaction session with the selected institution;

f. reverting the TEM to its idle or wait state after conclusion of the transaction session.

According to a still further aspect of the present invention there is provided a transaction execution system comprising:

a. a TEM for facilitating a transaction session between a user and a selected institution from a plurality of institutions, the selected institution including predetermined branding elements;

b. a communications system responsive to information provided by the user for operatively coupling the TEM to the selected institution; and

c. a configuration system for configuring the TEM in accordance with a plurality of branding information for the selected institution, thereby dynamically branding the TEM with an identity and functionality of the selected institution.

In another embodiment of this invention is provided a dynamically branded transaction execution system comprising:

a. a plurality of member institutions, each of the plurality of member institutions including predetermined branding elements;

b. at least one shared TEM; and

c. at least one routing and processing system to connect and process information between a selected one of the plurality of member institutions and the shared TEM;

wherein the shared TEM is configured such that when a customer provides information to the shared TEM, the shared TEM comes under the control of the selected one of the plurality of member institutions, and the shared TEM is branded using the predetermined branding elements to provide an identity and functionality of the selected institution.

According to a still further aspect of the present invention, there is provided a dynamically brandable TEM for use in a transaction execution system comprising:

a. a communications system operatively connectable to the TEM responsive to user-provided information for coupling the TEM to a selected institution from a plurality of institutions, the plurality of institutions including predetermined branding elements; and

b. a configuration system for configuring the TEM in accordance with the selected institution, thereby facilitating dynamic branding said TEM with the predetermined branding elements of the selected institution.

According to another aspect of the present invention, there is provided a system for providing a user with an interaction session that is dynamically branded, the system comprising:

a. a TEM for facilitating the interaction session between the user and a selected institution from a plurality of institutions, the selected institution including predetermined branding elements;

b. a communications system for operatively coupling the TEM with the predetermined branding elements of the selected institution;

c. a configuration system for configuring the TEM in accordance with the desired predetermined branding elements, thereby dynamically branding the TEM; and

d. a revenue stream generated as a result of the interaction session between the user and the TEM; wherein a portion of the revenue stream is distributed to a participant of the system.

According to a further aspect of the present invention, there is provided a dynamically branded transaction execution system consisting of: at least two selected institutions to be chosen from a plurality of institutions; at least one shared TEM; and a processing and routing system for operatively coupling the selected institutions to the TEM; wherein a customer of the system is provided with a macro identity known to the system, the macro identity used to provide the user with the capability of executing one or more transactions within a session

involving user's accounts at said multiple selected institutions as if said accounts were maintained at one institution.

According to a still further aspect of the present invention, there is provided a computer-readable media for use in providing a dynamically branded transaction execution system comprising:

a) at least one TEM for facilitating sessions between a user and a selected institution from a plurality of institutions, the selected institution including a predetermined branding element;

b) a communication system responsive to information provided by the user for operatively coupling one of the TEMs to the selected institution; and

c) a configuration system for configuring the TEM in accordance with the predetermined branding element, thereby dynamically branding the TEM with an identity and functionality of the selected institution.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the preferred embodiments of the invention will become more apparent in the following detailed description in which reference is made to the appended drawings wherein:

Figure 1 is a schematic of a dynamically branded transaction execution system;

Figure 2 is a transaction execution machine (TEM) of **Figure 1;**

Figure 3 is a user interface of the TEM of **Figure 2;**

Figure 4 is an alternative embodiment of **Figure 1;**

Figure 5 is an alternative embodiment of **Figure 1;**

Figure 6 is an alternative embodiment of **Figure 1;**

Figure 7 is a schematic representation of a TEM display of **Figure 2** emulating hard-wired buttons; and

Figure 8 is a representation of a screen-shot during a macro-account transaction using the system of **Figure 1**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

An embodiment of the present invention generally provides a method and system for dynamically branding a transaction terminal, also known as a transaction execution machine (TEM), by a particular institution selected from a plurality of institutions. The TEMs can be incorporated into a transaction execution system that connects the TEMs by a routing and processing system to the institutions. The TEMs can assume "multiple personalities" responsive to dynamic branding, which is determined by predetermined specifications (or branding elements) of a customer selected institution during a transaction session. The execution system provides for the TEM apparatus and for a system that includes such dynamically branded TEMs.

A TEM is a machine with a purpose of effecting a transaction between a user of the machine and an institution, where the TEM interacts with the user through input/output sub-components. The TEM and the institution are coupled by the communication and configuration systems. The TEM is capable of being configured to include the branding of at least one desired institution during the transaction session with the user.

A TEM can include a variety of known devices, predictable devices, and those which may arise in future. Known devices which are capable of being TEMs when properly configured as part of the system disclosed include (by example and not by limitation) the following: ATMs; personal computers with browsers and web access; web-TV (™ Microsoft Corporation) and similar devices; browser-enabled cell-phones, PDAs; various automated bank machines, two-way pagers; portable computers with wired or wireless web or communications access; kiosks such as touch-screen/interactive information-displaying kiosks with communications means; any of the above, either with or without printing, sheet dispensing, scanning, or depository or other similar "legacy ATM" typical capabilities. The TEMs could also be a variety of automated cash machines, automated bank machines, point of purchase devices, kiosks, and other devices with a means to received ID from or of a user and to subsequently present an institution's branded content to the user. When used herein, "TEM" or Transaction Execution Machine, shall have this meaning.

The TEMs can include a browser, and the configuration spoken of including branding, which is accomplished by supplying to the browser system in the TEM instructions and data

in forms like documents with embedded tags, but which are in fact anything capable of being handled by a browser, including by example and not by way of limitation, applets, data and instructions capable of being handled by plug-ins to a browser, and the like. Content may be rendered by the browser to provide an interface to the user at the TEM by being converted into a display and interface, while the TEM may be controlled by data and instructions sent to it which are otherwise handled by the browser or its plug-in applications or mini-apps or applets or the like, such as instructions to permit recognition of a touch-screen input device, means of accomplishing the dispensing of cash and the consequent recording of machine states and events or transactions, the operation or engagement of peripheral devices at the TEM, the communication of TEM states, and the like. Thus, the user interface provided by the configured TEM is anything renderable by at least one browser, including but not limited to faceless browsers or a browser with no skin, streaming audio or video, or other data-type plug-ins, players or components such as QuickTime (TM Apple Computers), Shockwave (TM Macromedia), Flash (TM), Realaudio (TM Real Corp), and the like.

The logic, presentation and appearance of a user interface of the TEM, including transactions executed at the TEM which may be an ATM, are collectively referred to here as "branding" elements, and when variably provided by the system of this invention, as components of "dynamic branding".

Some sample elements of branding may include:

- logo
- type style, color scheme, layout
- display layout, trade dress, trade marks, look and feel
- functionality, advertising space, advertising copy, special features and functions
- transaction ordering and sequencing capability
- types of transactions permitted, encouraged, degree of difficulty or ease in accessing one type over another, steps of query/response or page/action required or provided during the transaction session; number and type of accounts available, interface with other information (which may be simply informative, or may be tied somehow to user identity or preference, TEM location, time of day, date, historical use, other)

- degree of personalization to end-user (identity, name, preferences –chosen or by statistical analysis or otherwise)

There are three variants of the "branding" of a TEM, namely: 1) when the member institution controls the TEM directly through the communications and configuration means of the system; 2) when the member institution uses a legacy or traditional authorization network service provider (an example is the Interac consortium system) to provide transaction services, but desires the transaction to be partially branded from the user's point of view; and 3) when a user interacts at a TEM which is part of the system where the institution with which the user wishes to deal is not a member institution, in which case the transaction authorization, logic, and sequencing might be required to conform to the requirements controlled by Interac or another legacy or traditional transaction service, the other elements of "branding" would be controlled by the router/switch element of the communications and configuration systems of the invention, and could include advertising leading a user away from the user's preferred but foreign institution to a member institution or otherwise. Non-member institutions may not necessarily be enabled to provide configuration of the TEM, which may be configured in accordance with the system's "generic" mode, and such that the non-member's users may not see the non-member's branding, but may be able to carry out generic types of transactions (much like Interac or Cirrus or Star locations can do now) with content and interface elements provided by this system to the specifications of the member institutions and the router/switch operator, the TEM owners, and the other stake-holders in the system. While the screens and other branding information in the generic mode may not be specific to an individual institution, the generic mode can still utilize the fundamental aspects of the dynamic branding system to increase the utility of the transaction. In one example, an ATM deployer, merchant or the operator of the system could enable a user to express a language preference from a range of available choices, and the system can display all the 'generic' functionality in the language of that user's selected choice. Further, the system can record the preferences expressed by the user as entered either at the TEM or through some other means or at some other time, and recall those preferences to modify. The type and number of branding elements can be predetermined by the associated institutions, and/or the TEM customers, during setup and operation of the system or during particular stages of a transaction session.

Some institutions when initially becoming members of this system may find it useful or desirable to put only the trade-mark and trade-dress, logo, color scheme and appearance portion of the branding into the control of the system, while maintaining the transactional control at an existing system site or provider location. This arrangement might be a permanent arrangement or might be part of a transition to allow early entry into the entire system of multi-personality TEMs provided through this system with at least the trade-mark style of branding elements being provided.

When the word "branding" is used, it is meant in the broadest possible sense, and not merely to provide the name of the institution and its logo. "Branding" as used herein includes all aspects of branding which may include, by example:

> the overall style and motif presented; logos; type styles; color schemes; layout; trade dress; trademarks; look and feel; style of language used; dialect and/or national language used; presence or absence of advertising space; advertising copy; types of transactions permitted or encouraged; degree of difficulty or ease in accessing one transaction type over another; steps of query/response or page/action required or provided during the transaction session; number and type of accounts available; interface with other information (which may be simply informative, or may be tied somehow to user identity or preference, TEM location, time of day, date, historical use, or other information).

When we discuss "predetermined" branding elements, we include branding elements which have been designed or the calculation or instructions for the assembly or building of which have been designed, and are stored or accessible at the time.

In order to use the system of the multi-personality TEMS, the institution with which the user wishes to interact must be determined. In order to determine the desired institution, some information must be provided. This information can take any of several very distinct forms:

a. physical machine readable indicia presented by the user. This would include, but not be limited to, smart or other cards and cheques;

b. biometric information about the user. This could include (without limitation) measurable physiological identifiers such as voice-print, fingerprint, iris scans and the like; or

c. some indicia transmitted, such as by infrared, RF, phone (call a number on the TEM) or otherwise to the TEM at the user's direction or on the user's behalf.

It is also possible for a user to begin using the system by allowing the user to make a selection using the user interface provided by the TEM such as by a choice on its wait state interface. This would usually be by making selections on a touch screen on the TEM, or by using a keypad, keyboard or buttons on the TEM.

Physical indicia presented by a user would at this date most commonly be a card such as a credit card or bank issued card. Such a card can have either a magnetic strip that carries the necessary information or it can be a chip card or smart card, which has on-card storage that contains within it the necessary information, or alternatively or additionally, the card might contain a bar code or other machine-readable information. In some cases a single card may contain or carry information in several forms such as both on a magnetic strip or bar code and within the storage of a chip on the card. In such a case the source of information read will depend upon the capabilities of the TEM. For example a card may have both a magnetic strip and a bar code, and when the card is used in a TEM that is part of the system described herein, the magnetic strip may be read. When that same card is used at a point-of-sale checkout of a merchant the bar code on the card may be read by an optical scanner at the till.

For brevity, where we use the words "smart card" it shall be taken to mean either a memory-only chip card or a chip card that has both memory and computing capability, as either can work for the system, methods and apparatus described herein.

Where the indicia is physical, the user presents it to the TEM. Usually this involves inserting a card into a card reader on the TEM. Such card readers can take several forms: where the user swipes the card through a reader, motorized readers that retract the card inside the machine to read them, or ones where the user manually inserts the card and it stays accessible to the user. All of these types of readers are suitable for magnetic cards while only the last two are suitable for reading chip or smart cards. The motorized readers are common

in full function automated bank machines and high end kiosks, while the swipe and manual insert schemes are more common in low end ATMs, cash dispensers, smart display phones, most kiosks and portable devices.

Once the user has presented the card, some or all of the information on the card is read in order to determine the institution with which the user desires to interact. This information can take a variety of forms including a URL, a BIN, a IIN or a unique number or string. The information may actually be two or more pieces of information which when taken together are unique for purposes of identifying the institution, and may be provided in one or more steps.

For example, if the operator of a system, as described herein, were to assign unique numbers to its member institutions on a country by country basis, and member institutions issued their members items which had both this number and the country code in the form of a bar code on the item, then the member institutions could provide for their users to use the system by using the bar coded item to provide a unique reference to a member institution, at least within the context of that particular system.

If the customer's desired member institution is identified by the customer presenting a smart card to the TEM where said card contains identifiers for several institutions, then the user is first presented with and makes a selection from a branded display of all institutions represented on the card that are members of the said transaction system.

Another way that a user can obtain the branded interface of the desired institution is to make a selection from the wait state TEM interface indicating a wish to manually select an institution. The user could be prompted using a variety of approaches to arrive at a desired unique institution. This could be through a series of narrowing questions, a search by name, a series of selections from a series of more and more zoomed-in topic maps or geographic maps, or by manually entering institution identification numbers such as its BIN, IIN or routing number. The branding of that desired institution would then be presented assuming such institution was a member of the system. Typically, the user would then be required by the institution to provide further information for identity and authentication.

In a transaction execution system as defined herein, some or all of the TEMs may include a user identification system for automatically identifying said user's desired institution by a method that first involves biometric identification of the user. The biometric information about the user will be captured at the TEM and will then be compared with entries in the biometric databases of each member institution that supports such method of identification of a user. For example if the biometric identification method is an iris scan, then the user's iris scan only needs to be searched in institutions that have iris scans for some of their customers. In this example, to speed the matching it may be desirable to scan every institution's iris databases in parallel. If only one match is found then the branding of the institution in whose database the match was found will be presented. If more than one match is found, then the system could present to the user on the display of the TEM a pick list of all the matching institutions from which the user could make a selection to proceed. Where there are several possible institutions for a particular user, of a subset of the matching institutions' essential branding elements of those institutions could be displayed, such as a small logo and color scheme, in order to assist the user in making a choice. Having selected the desired institution, the branding of that institution would be presented. The relating of institution to branding location and the presentation of that branding would be done using methods and systems previously described.

It may be desirable to improve the performance of biometric matching by having a consolidated set of biometric databases maintained at a single location accessible by the TEM directly or through some intermediary system.

The dynamically branded transaction execution system described herein can be operatively connected to one or more traditional or legacy transaction networks, so that when users presents indicia that indicates a desired institution which is not a member institution of the system, the user's transactions can be supported to the extent possible by operatively communicating with the desired non-member institution over traditional transaction networks. In this case, the transaction would not be branded and the available transaction types would be limited to those supported by the particular traditional transaction network (such as Interac, Cirrus or Honor/Star).

In other cases an institution may be a member or participant in the system but only connected via a traditional transaction network. In this case, a session can be branded using

content created by or for the member and served from any of: the TEM; communications and routing systems; or a service provider on behalf of the institution.

In the dynamically branded transaction execution system described herein, the user interface of the TEM can include the ability for a user to communicate directly with a representative of a desired member institution from said TEM. This direct interaction can begin at a point in the session when the institution requires human interaction for reasons of authenticity related to loss control, for customer service reasons, to deal with complex requests or direct interaction. This can be done with audio conferencing or direct interaction audio and video conferencing. The display of the TEM can be used, if suitable, to display the image of the customer service representative. The use of the audio conferencing simply requires that the TEM contain a suitable microphone and speaker.

This representative can be situated as part of said processing and routing system, at a location of said member institution or at a location of a service provider acting on behalf of the said member institution.

By allowing each transaction execution machine to control its own peripherals such as printers, currency dispensers, depositories, keyboards, screens, and the like responsive to programming embedded in documents provided for or routed by a router/switch, and to report activities and states back through the same router/switch, it is provided, in addition to "dynamic branding" and "customer macro-accounts", functionality on the network, preferably at the router/switch, which provides for translation and buffering and interpretation services which allow operability of the TEMs which use and expect information and programming via XML over TCP/IP, and legacy transaction authorization systems which use and expect responses via proprietary message formats and protocols such as Diebold 911/912.

Conversely, by routing state information from legacy ATMs to the router/switch, functionality on the network, preferably at the router/switch, provides for the translation and buffering and interpretation services which allow operation of the legacy ATMs which use and expect communications and instructions via proprietary message formats and protocols such as Diebold 911/912 by either legacy transaction authorization systems or by more

modern transaction authorization and accounting systems which use and expect information and content via XML.

By providing the interpretation, buffering, and translation services for communication between legacy authorization and control systems, legacy ATMs, modern web-enabled TEMs and modern web-enabled institutions at the router/switch, translation, buffering, interpretation and emulation databases, and the required processing and data co-ordination may occur at a more powerful and capable computer site than at a limited capacity TEM, and it also becomes possible to provide dynamic branding with legacy transaction authorization instructions without problems which occur co-ordinating branding information with transaction information if those two disparate types of things are provided directly to the TEM in their own formats to and from different sources.

In various of the traditional ATMs provided by a number of suppliers, there is provided in an array at points around the display screen of the ATM a number of hard-wired buttons. The display is variable to indicate the functionality of each of said buttons, which may be different at different stages during a series of transaction steps during a user's session interacting with the ATM.

When a TEM is provided with suitable touch-screen video display as a peripheral, said display may be configured by a portion of the information (for example by way of HTML documents, tags, applets, or the like) by means of which the TEM is configured, such that a portion of said screen is made to emulate the hard-wired buttons on a traditional ATM, in order that a member institution's pre-existing branding information having to do with the way it deals with its captive traditional ATM may be emulated, using a embodiment of this invention as an example, at a web-enabled, browser-competent TEM connected via the routing and switching means to said institution and to branding.

In order to facilitate the operation of the TEM, the instructions for operation of certain devices or capabilities of the TEM can be contained within the same document set that contains the branding of the institution. These instructions facilitate one or more of the following functions or their like: printing information on a printer in the TEM; printing coupons including with barcodes; dynamically printing an item of value such as an event ticket, internet postage, a negotiable instrument, draft, or cheque, a transportation ticket, a gift

certificate, a lottery ticket, a license or permit, or scrip; requesting the dispense of a pre-existing item of value such as currency, prepaid phone cards, conventional postage stamps, coins, tokens, gift certificates; accepting into a provided depository paper items including signed forms, applications, negotiable items, and currency; triggering the capture of the users image or some biometric data; triggering the capture of a signature on signature pad or touch screen; triggering the capture of a scanned image of a bill, invoice sheet, cheque or other document provided by the user.

Device capabilities of the operative TEM within a session can be previously known by the institution or sent at the beginning of each session, in order to tailor the user interface and branding elements presented by the TEM to the capability, screen size, peripheral enablement, consumable supply, machines state and the like provided at the TEM.

At or near a transaction session's start, a TEM could communicate to the system and its participants, its capabilities and optionally, the state of its consumables, to permit optimum dynamic branding. The institution can query the TEM at any time during a connection in a session, to obtain device capabilities or status, status of consumable supplies on hand at TEM, data collected by or at the TEM, or the like, as desired. Additionally, the branding content documents supplied by the institution to control its branding can access status information regarding the TEM, including items such as the status of consumables. In both cases the institution can respond dynamically to the capabilities in existence at each TEM at an point in time in a user session involving that institution's branding and control.

During operation of the transaction execution system, the TEM could be waiting in a mode that can be called an idle or wait state. In this state no user is directly using the TEM. A user wishing to make use of the TEM would first provide information to the TEM that would then be used to determine the institution with which the user wished to interact. The TEM would then be operatively coupled with that institution so that the user could conduct a transaction session with the institution, and should the institution happen to be a subscriber to the system, the branding and configuration of that desired institution would be presented on the TEM. The user would conduct a transaction session with that institution where throughout the session the content displayed to the user was content specific to that institution and was complete with all aspects of the brand of that institution appropriate to the capabilities and location of that TEM. At the end of the session the TEM would return to the

idle state where it would await another user. A next user could conduct a session with a different institution and would then experience an entirely different set of content and branding. The TEMs preferably have an open and flexible system of presenting content, and facilitate providing a variety of branded content of a plurality of institutions.

When initiating a transaction session of the TEM with a selected institution, the term "operatively coupled" could include, for example:

- the identification and the provision of communications facilities, direct or indirect, between them or between one of them and an agent of the other of them, with or without a persistent physical circuit; and

- coupling might in some circumstances involve identification and communication provision between or amongst more than two entities; and

- coupling may be between the user of a TEM and some component of a desired institution's branding elements, however provided; and

- coupling may mean the system acting as if a coupling described above had actually taken place.

The TEMs would be coupled via any means that can provide or be made to provide reliable data transmission over a network. The network would connect the TEMs with the desired member institution, service providers acting on behalf of institutions, and with authorities responsible for accounting for items of value within the TEMs and with organizations responsible for the operation and maintenance of the TEM.

Institutions that could be coupled to the TEMs and thereby make use of the dynamically branded system described herein include; all manner of financial institutions, merchants that wish to develop relationships with their customers particularly by way of loyalty systems, government organizations that issue identification or permits or licenses, and any other organization that wishes to provide a means of interacting with its customers or members at a variety of access points in a way that the institution would have control over the image and functionality presented to the user. So, throughout this document, where the term

"institution" is used, it shall be taken to mean any such type of organization, institution, company, government agency, merchant and the like, including for example, banks, credit unions, savings and loan companies, finance companies, insurance providers and brokers, credit card issuers, securities brokerage firms, trust companies, mutual fund companies, wealth management companies, lottery organizations, motor vehicle agencies, mortgage companies, government licensing bodies, airlines, cooperatives, associations, charities, and as well any type of financial institution, merchant, service provider or retailer.

It is also to be understood that in a multi-institution system such as described in this document as part of the invention, there are more institutions than those subscribing to the branding service provided for, thus those subscribing institutions are referred to as member institutions. It is also to be understood that subscriptions to said service may be in a variety of levels of involvement or participation in the transaction execution system.

While the institutions are coupled to the TEMs, the execution system may process forms of documents that include tags or instructions embedded therein. The most common current types of tag-based documents are referred to as HTML ("Hypertext Markup Language"), which is a variant of a more generic type of Standardized General Markup Language ("SGML"). SGML includes other variants such as XML (eXtensible Markup Language). XML has been developed primarily focused on the transmission of inter-computer understandable data and data structures, with some capability of description of presentation elements.

In software implementations of systems using current 'web' technology, collections of images, branding elements, machine instructions and data are often referred to as 'documents'. Documents tend to represent a logical subdivision of a larger set of related instructions or data, and frequently include the capability to reference data in other documents or pass control to instructions in other documents. These documents are more specifically files containing elements in some standardized arrangement such that the file elements can be interpreted and the instructions implicit in the file contents can be acted upon by the interpreter to set or control the appearance, data, transaction flow and many other elements. In the context of dynamic branding, a 'document' may indeed be such a collection conforming to widely utilized document standards such as HTML. However, it will be readily understood by those skilled in the art that these collections may be of some less

common type or may even be unique to a specific implementation of the system, and that the 'document' may not necessarily contain directly human-interpretable elements such as text, but that a 'document; can consist of any set of instructions, data or any combination thereof, including elements such as software routines, directly executable computer code, transportable or platform independent code, data elements, tokens, variables, and any other item used in the control of a software process, such that the contents of all or part of the 'document' can be interpreted, read or executed by the system such that the system may act upon them to control, configure or influence its operation, capabilities or appearance. The term 'documents' in the context of this system description may be conveniently considered to include all conventional and widely standardized collections commonly called documents, such as HTML files containing or referencing java code, in order to aid in the understanding of the system using widely familiar paradigms. However, the term as it applies to the present transaction execution system includes, as well the broadest range of any arrangement, sequence or collection of instructions, data or code that forms a logical subdivision of the intended system behaviour. While this example assumes the conventional usage of the term URL, it will be readily apparent to one skilled in the art using the term URL as defined in the context of the dynamic branding system that the URL could be any form of reference or pointer to the instructions, code or data or any other representation of initial set of branding information to be acted upon by the TEM.

XML provides means of describing data through data type definitions, which while human-readable, also lend themselves to be machine-processed. XML data descriptions begin to represent data types in a model useful to understanding and being dealt with in a particular type of business. XML documents may be thought of as "data-driven" and not "transaction-driven", and in essence are themselves "self-describing data". XML formatted documents are very useful in providing device-independent machine-to-machine data communications with hyper-linking capability, and thus XML is currently the most useful of the tag-based languages for TEMs. It is to be understood, however, that reference herein to and of the terms HTML, XML, or SGML or to documents with embedded instructions or tags is to be considered as a reference to each applicable member of that general group, and as such are interchangeable where to do so would be sensible and apparent to one skilled in the art.

Http and TCP, when its use is implied or assumed, are to be understood as including other similar or functionally equivalent transport and document delivery protocols, such as but not limited to Wireless Access Protocol, or WAP, and said terms may be interchanged when to do so would be sensible to one skilled in the art. Likewise, Wireless Markup Language, or WML, is to be interchangeable with XML (as elsewhere defined), where to do so would be similarly sensible.

A user's card may contain an actual reference to a document. A well-standardized scheme exists for specifying the document, location of the document, and the protocol for accessing the document. This scheme is called a Uniform Resource Locator or URL. An example of the form of a URL is:

http://brand.autobranch.com:80/startingpoint.html

Where the "http://" portion specifies the protocol for accessing the information, which in this example is the "Hyper Text Transfer Protocol" commonly used for transferring web documents such as HTML and XML. The "brand.autobranch.com" segment is the name of the logical location of the computer that is accessed. That name is converted into an actual IP address by using the domain name system (DNS) which provides translation of names to IP addresses on the world wide web. The "startingpoint.html" in this example is the name of document that is to be retrieved. The ":80" portion of our example is the port to be used on the computer being accessed. As many protocols have a default port, this portion can be and is often omitted from a URL. So in our example, if a user presented a card that contained the above example URL, the TEM would look up the address for the domain "brand.autobranch.com" and then use the "http" protocol to send an http request to that address using the port number specified, "80". The request would ask for the document "startingpoint.html". To provide for dynamic branding, that document would contain various elements of the branding of the institution that provided the indicia that pointed to that URL. The branding elements would be in the set of documents of the starting document along with all related documents and files referable from that first document.

While "URL" (Uniform Resource Locator), as described by the Internet Engineering Task Force in the document RFC 1738, is the common term for expressing a complete reference to a net-based resource, those skilled in the art will appreciate that this could also

be a "URI" (Uniform Resource Identifier) as described in RFC 2396 or a "URN" (Uniform Resource Name) as described in RFC 2141 and therefore throughout this document where the term "URL" is used it is to be taken to mean any one of these or similar terms that describe a similarly complete reference to a resource.

In addition to embodiments relying upon URL standard addressing means to locate branding and other elements of this invention, it will be apparent that "URL" can as easily be replaced, were to do so would be sensible, with words such as "location", "stored source", "pointer", "starting point", "reference", "entry point" or other words, where such infers a complete reference useful for access, retrieval, or a starting point reference to a collection of machine interpretable instructions, code, or data in any form.

An organization that has never issued cards before may find the actual provision of a URL as part of the information stored on its new user cards to be a desirable approach. While having a URL on each card makes access to the starting point for the branding of that institution straightforward, the drawbacks are several, particularly for institutions and organizations that have previously issued cards. There are an enormous number of existing cards in use by consumers which do not currently have URLs on them. The cost of reissuing or recoding cards can be significant. Another drawback is that there is no well-accepted standardized location for storing a URL on a smart card or on a magnetic card nor even for indicating that one is present. Also, a URL can be a significant size in comparison to the total amount of data storage possible on a magnetic strip or bar-codable surface area of a card. So, while it would be possible to construct a system that could use URLs stored on indicia, many aspects of such a system could be proprietary to that system, and there are some disadvantages or impediments to its implementation.

The indicia may alternatively contain a numeric representation which can be manipulated to become or refer to a URL which references desired branding information of a member institution.

A more desired way of determining the starting point for the dynamic branding of the TEM is to use some information that already exists on common indicia such as magnetic cards or smart cards, and then to relate that existing information to the starting point for the dynamic branding configuration or coupling step.

Cards issued by financial institutions routinely and almost universally contain a Bank Identification Number (BIN). A table can be maintained that contains BINs and the URL associated with each particular BIN. This table can be stored within the TEM itself or can be accessible for lookup over a network connection. When the table is stored at the TEM, the copy on each TEM must be updated from time-to-time as new member institutions are added or the URL for a particular BIN is changed. Where the table is not stored on the TEM but is accessible for a lookup over a network, then responses to frequently used BINs might be cached in a variety of fashions on the TEM or in the system in order to improve system performance.

A more general approach than using a BIN would be to use the Issuer Identification Number (IIN) as described in ISO 7812 for magnetic cards and ISO 7816 for smart cards. These specifications describe the format used for almost all magnetic cards issued worldwide and for many smart cards. The specifications and related policy and system of registration bodies provide a method of having the Issuer Identification Numbers assigned in a way that each is unique on a worldwide basis. The IIN therefore provides an ideal key for a lookup table or other similar mechanism for relating a user-provided IIN to an associated URL pointing to branding elements.

Other forms of physical ID that the user could provide that could include the necessary information include:

- a bar code attached to an a item such as a tag on a key chain;
- a proximity device such as are frequently used to control building access;
- some other form of token or identification capable of being machine read or recognized by the TEM.

Any of these could contain or represent an IIN and optionally additional useful information.

Another way that a user could provide useful instantiating information to a dynamic branding system is to enter a cheque or other MICR-encoded material of the desired institution into the TEM ("MICR" means Magnetic Ink Character Recognition). This would require that the TEM had the ability to read the machine readable coding on the cheque. This coding includes a bank routing number that is unique at least over large regions. Since such a system is likely to be deployed on a global basis, the bank routing codes may not be unique. If that were the case for a particular routing code on a user cheque, then the system could present to that user on the display of the TEM a selection of all the institutions matching that cheques routing code and the user could make a selection from that list before proceeding. A subset of the branding elements of those matching institutions could be displayed, such as a small version of a logo and color scheme, in order to assist such user choice. In the vast majority of cases this intermediate step that requires the user to pick the institution from a list would not be necessary, and the user would be taken directly to the opening screen branded for the desired institution. The cheque or other MICR-encoded material so presented to the TEM could either be returned to the user or kept in the TEM for later secure disposal.

Another way that necessary identification information to dynamically brand the TEM can be provided to the TEM is by sending the information from a portable device that is in the user's possession to the TEM. When the portable device is in close proximity to the TEM it can be temporarily operatively connected to the TEM to provide the identification information which indicates the desired institution.

Such portable device would have the identification information within it because it contained a smart card chip with the information, or it had a card reader of its own and a user has inserted a card, or the portable device itself had previously been provided by the desired institution with the information pre-stored in it, or the information might at some time have been manually or otherwise entered into the device, or entered into the device by some other means.

The operative connection between the portable device and TEM might be provided by means of a short distance infrared connection. Infrared capabilities are now common in portable devices such as hand-held computers, personal digital assistants, cell phones, PCS phones and other wireless phones and devices.

The operative connection could also be provided by a short distance radio frequency connection between the portable device and the TEM, such as Apple Computer's "Airport" (™) or Lucent Technologies' similar 802.11 "orinoco" (™) wireless networking systems or by a technology known as "Bluetooth" ("Bluetooth" is a ™ of TelefonaktieboLaget L M Ericsson, Sweden).

In a further embodiment, TEMs can be used as access points for general web browsing by portable devices that are in the near vicinity. Since some TEMs will be equipped with suitable connections to the public internet these TEMs, when also equipped with wireless means, such as Bluetooth, can support users with portable device that simply need an internet access point to perform such activities as email sending and receiving, and general web surfing. This capability would preferably only be deployed on TEMs that have sufficient network capacity that they can support such additional users without degrading the performance experienced by users who are using the TEM to conduct transaction sessions with their institution. The TEM should preferably limit the number of such sessions that it will allow to be conducted simultaneously to be appropriate for the capacity of its network connection. The payment facilities of the system can be used to allow these users to be charged for such uses of the TEM as an access point. When the portable user first connects to the TEM in this fashion, the TEM or the routing and processing portion of the system, will present a screen where the user will be advised of the charges for such general web use and will be asked to provide a means of payment before proceeding. The means of payment can be a credit card, bank debit card, transfer of value electronically or any other means of payment supported by the system that the TEM is connected to and that the user has. Payment means can also include the user first conducting a transaction session with their institution in order to pre-authorize a transfer for the use of the general browsing capabilities enabled through the wireless access to the TEM. At conclusion of the user's web session being conducted through the TEM, the payment means previously indicated by the user will be charged for the session. Optionally an electronic receipt for the session can be provided to the user, by email or otherwise. Users that wish to use such facilities frequently can enroll with the system to speed the logon and payment setup process by prepaying into an account that will be debited with each such session as they use it. In an alternate payment model such use of a TEM as an access point could be supported by advertisement that users could agree to see as the bargain for being able to receive this free wireless internet access. The system can increase the value to advertisers by providing information on the location of the TEM

that user is using. Advertisements appropriate for the demographic served by the establishment where the TEM is located would be presented. Further, where appropriate and the user has provided necessary consent with respect to local privacy laws, the system can use its knowledge about the user to further assist advertisers in presenting advertisements and offerings that will most likely be of interest to the user.

Based on one of the variety of means that the desired member institution can be identified, the branding for that institution would be located. This is best done by having a table that relates the institution identification in the form of an ISO 7812 Issuer Identification Number to a URL where the branding information is located.

The URL may include a "file" reference to a document stored within the operative TEM. An example of such a URL would be:

"file://c:\brands\ca\examplebank\startingpoint.xml"

If some or all of that content were so stored within the TEM, then when the institution wished to update or change its content, and the portions stored in the TEM were to be modified, the replacement content could be pushed out to each TEM (downloaded at the server's initiation). This would be done by the communication and routing system. While this example assumes the conventional usage of the term URL, it will be readily apparent to one skilled in the art using the term URL as defined in the context of the dynamic branding system that the URL could be any form of reference or pointer to the instructions, code or data or any other representation of initial set of branding information to be acted upon by the TEM.

Similarly the starting URL might include an "http" reference where the referenced document is stored within the TEM. This could entail the TEM running a web server to serve content to itself. This approach would increase the resource requirements of the TEM somewhat, but is within the operating means of modern computer-based TEMs, and having a TEM also operating a web server might be desirable for other functionality.

The starting URL could alternatively also include an "http" reference where the referenced document is stored within one of: a subpart of the communications and routing system on behalf of the desired member institution; any servers of the desired member

institution accessible over a network; within servers, or accessible over a network, of a service provider on behalf of the desired member institution. It could also be a document generated by any of these upon receipt of the request. An example of such a URL would be:

http://examplebank.dynamicbrand.com/startingpoint.cgi?AccountNumber=31264&DeviceAcceptsCheques=False

Where a document is so generated, it can be done through a server-executable program or script which may take parameters from the query and/or perform processing operations including but not limited to generating content from a database, and give to the TEM a tagged document of the standard format.

The table containing the IINs and related URLs could be stored in a variety of ways in a variety of places and lookup could be done in a variety of ways to make the system described herein operative. These include using middleware, a light-weight directory access protocol (LDAP) server or an extended or modified DNS server, any of which in response to a query providing a particular IIN or a manipulation of an IIN, could return the starting URL for the corresponding institution.

An example of a lookup table is:

IIN	URL
451601	http://examplebank.dynamicbrand.com/startingpoint.html
552001	http://552001.dynamicbrand.com
37****	http://brand.abcxinstitution.com:88
749318	http://brand.joesgascompany.net:8301/start.xml

Having retrieved the starting branding content from the source identified in the lookup table, the TEM could then present the branded content to the user. While any number of schemes exist for the format for storing and encoding the content and presenting that content, the most desirable is for the content to be "web content", particularly XML, and the presentation to be done by a browser or browser object that will render, format and process it as necessary and present it to the user. Current standard browsers can format and render most

of the required content to enable dynamic branding. TEM functions not currently performed in a browser may require that additional software assist the browser by providing calls or entry points, or additionally intercepting and acting upon branding content that is non-standard to that browser. In this way the branding that a particular institution wants to provide on a TEM can be developed using largely the same tools, techniques and staff used to create the web sites of that institution. Also in this way the institution can reuse many elements of branding that it has already developed.

Any valid web content including by example (and not by limitation): XML, HTML, WML, gif, jpegs, and applets; could be supported in this scheme. Even content that is supported by a plug-in program for a browser could be supported in this manner. This could include such content forms as Shockwave and Flash from Macromedia Corp, Real Audio and Real Video from Real Corp, PDF document format from Adobe Systems Inc., and the like.

For brevity, as previously discussed, when the term "XML" is used it shall be taken to include or to be any one of, or all of as appropriate, and which would be understood by someone skilled in the art, HTML, XML, WML, SGML or any other similar "document and tag" based language including, where appropriate, further content types including portable code that these documents can refer to or contain.

An example list of traditional transactions that can be implemented in this system between a user and an institution could include actions such as:

- account balance and history queries and reports;
- deposit of cheques or money, issue of receipts, addition to user account balance;
- cash withdrawal, receipt issue, deduction from user account balance;
- inter-account transfers and bill payments;
- receipt issue, corresponding account balance adjustments; and
- like transactions.

In regards to general applications of the multi-personality system, the group of parties capable of being "institutions" is growing, and thus the identity of the "user" grows commensurately to also include those new institutions' customers or those with whom those old and new institutions will transact. The number of available types of transactions also

grows commensurate with the addition of new types of parties, but as well with the addition and invention of new types of interactions between users and institutions and the invention and introduction of new types of enablements of TEM capabilities. It is therefore to be inferred here that "transactions" include all such interactions between such users and such institutions as would be understood or inferable by one skilled in the art and possessed of the common general knowledge and information in this area of social or commercial interaction. Some examples of new "transaction" types might be:

- transfer of loyalty points inter-party;
- redemption of air miles or other non-currency value items for goods and services;
- bids, offers and acceptance of novel contract formations, including as well, reverse auction methods;
- on-line catalogue purchasing;
- on-line fund or value transfers and donations,
- information browsing, query, search, and provision;
- on-line advertisements or survey;
- interactive storytelling;
- ICQ and chat between parties or groups;

and the like.

Desirably, the system also permits the institution defining the branding experience to determine other elements that may not be directly visible to the user and are more traditionally part of the systems engineering, design and protocols, message and data formats which can be customized by each member institution. For example, the dynamic branding content, and any data of any form that is specific to the member institution, and any data of any form that is specific to an individual customer or group of customers of the member institution, can under the control of the institution be stored and recalled from within the TEM itself, from within any point or points within the routing and configuration system, or from within any system under the control of holding data belonging to the member institution, or further to store, retrieve or communicate to any of these points at any location within the system, or in any combination of such locations; and further that the institution may define whether and how during the storage or transmission of such data is encrypted, translated, or otherwise protected or transformed.

Preferably, the institution permits as complete control of the TEM and the connection between the TEM and institution or the agents of the institution as though the institution defined, engineered and implemented the system. This is generally the default case where a single institution deploys captive ATMs. The transaction execution system disclosed herein provides this type of control on the part of the institution even though the TEMs are not captive, while importantly preserving the segregation, co-operation and inter-institution security and confidentiality of the branding, control and content specific to each participating institution.

Due in part to the potential number and variety of institutions that can interact with the multi-personality transaction system, there are many techniques familiar to those skilled in the art for caching the branding information or at least the most frequently used branding information which could be employed to improve overall system performance and particularly the refresh rate at the user interface.

When the indicia was first read at the interface, likely only a portion of the indicia was used to identify the institution. The balance of the indicia would also have been read and could have been saved and later made available to the desired identified institution. This can be done in several ways. When the URL of the desired institution is accessed the additional information available from the indicia can be transmitted as part of the request for that first document. This can allow the first document and/or subsequent documents returned by the institution to be variably modified based on the additional data that was sent with the request.

The additional data from the indicia might also or alternatively be made available to software in the TEM in the form of variables that can be substituted into a document that is received or can be used to guide the processing of a document received. Such variable processing of the document could be accomplished with JavaScript, Java applets, vb script [NOTE: "Java" is a trade-mark of Sun Microsystems Inc. and "vb" is a short-form of "Visual Basic" a trade-mark of Microsoft Corporation] or other such portable languages or scripts, or some combination of these and other similar techniques. This making available of additional indicia data to the content of the browser is a capability useful in personalizing the content to be specific to the user or class of user, and in improving performance of the system as experienced by the user, and to assist the institution in presenting branding in the manner

which it desires. Some examples of the use of this additional data when so made available are: presentation in a preferred language and/or dialect; presentation in a way that assists users with particular conditions such as very poor or non-existent vision; an identification of the user by name or number; an indication of some group that the user is part of, such as a gold card club; provision of particular currency information.

In one embodiment, the TEM may capture and cache a user's personal preferences at that machine to speed transactions at that machine at a next session (caching most current branding and user interaction information) and, depending upon local storage and machine enablement, may temporarily or semi-permanently store certain user preference or other user-related information to speed transactions from a user perspective while maintaining the institutions' branding aspect (this is responsive to statistical analysis of user behavior known to those skilled in the art that suggest that users of ATMs utilize 2 or at most 3 ATMs for the vast majority of their transactions).

Caching may take place systematically as well, if desired, providing for system-wide date capture for system performance monitoring and management, as well as other uses which will be apparent to the skilled reader in this art.

Having reached the first page of the institution's branding, one of the first things that an institution may then do is to authenticate the user. This could be done so that the institution has the confidence that it is truly the user that is present at the TEM and not just someone who has found their indicia. In order to do this the institution may request a user id and password from the user. If the supposed identity of the user was contained in the additional data on the indicia then the user may simply be asked for a password. In the case of banks and other financial institutions, the user would often be asked to, at some early stage in the branded transaction session, provide a Personal Identification Number (PIN) which is simply a short numeric password.

One of the advantages of the system described herein is that the timing within the session when user authentication takes place, or if it takes place at all, is preferably under the control of the selected institution. Selected institutions may authenticate at the beginning of the transaction, or only when the user first attempts to access certain information, or only when the user is requesting to do some transaction of value. Further, for particularly

important or high value transactions, the institution might seek additional information to assure itself of the authenticity of the user and to prevent repudiation. The institution could also choose to require that for certain transaction types, or for high value transactions, the user use a TEM with particular capabilities such as one equipped with a camera or signature pad, or biometric measuring devices.

A number of techniques well known to those skilled in the art are available for encryption of passwords or of other session information, or of both, to be transmitted across the network connected to the TEM, or to be stored on the TEM or the server/router to which the TEM's connected. Similarly well known techniques such as with a public key and private key encryption infrastructure can also be applied to encrypting all information that flows to or from the TEM or such parts as are desirable. Such techniques can be variably employed during parts of a session between a user and an institution, at the control of the branding institution, or alternatively, as required by the system operator or in co-operation between the systems' various participants.

It may be required in some jurisdictions by regulation or law or simply by convention or requirement of the owner of the TEM or simply desirable to the institution or system operator, that when an institution wishes to dispense from that TEM one or more pre-existing items of value such as currency, prepaid phone cards, conventional postage stamps, coins, tokens, and the like, such a request must first be authorized via an authorizing authority.

The authorizing authority would typically be the organization responsible for accounting for, tracking, and replenishing these items of value at that particular TEM (or a group of such TEMs). In systems of traditional bank ATMs and White Label ATMs, this would often be called the party that was "driving" the ATM, or the "ATM driver".

When a request for such a dispense of an item of value is received at such a TEM, the TEM will transmit this request to an authorizing authority responsible for that TEM. Within this system there may be multiple authorizing authorities but a particular TEM would preferably only have one authorizing authority associated with its dispense functions. That authorizing authority would likely further communicate the request to an institution that must agree to ultimately approve and fund the requested transaction. That ultimate approver is typically the institution that holds the account that will be charged for the dispense about to be performed.

It is possible that another organization may be allowed to approve such requests on behalf of that ultimate approver. One type of such alternate approval is referred to as "stand-in" approval and may be conducted by the authorizing authority or automatically by prior arrangement, typically in circumstances where the authorizing network is down or the authorizing institution cannot be reached. It is to be understood that this discussion holds for the receipt at a depository provided at the TEM and managed and accounted for by the TEM's authorizing authority, which will follow a similar logical transaction series, for example instead of changing a user's account, adding to it to deal with said deposit in accordance with the institution's rules.

The format of the dispense request from the authorizing authority to the ultimate approver might be in any one of a variety of formats or mechanisms that may have been established between the authorizing authority and the ultimate approver. That format may be different from the format in which that authorizing authority received the request from the TEM, and it would in that case be the responsibility of the authorizing authority to translate as necessary between the different formats and schemes.

The common scheme in use to obtain authorization from the ultimate approver varies from industry to industry and even by institution within an industry. Within the banking community, for example, requests for authorization and approval is often done using a derivative of the ISO 8583 standard.

It is preferable for the TEM to transmit authorization requests to the authorizing authority in the form of ISO 8583 messages. One approach is for the authorization requests and related responses to be sent between the TEM and authorizing authority in a form where the message numbers, fields within messages, field contents and the meaning of all these are in compliance with or similar to the ISO 8583 standard but the encoding, representation and other aspects of the form and format of the data is in a document conforming to the XML standard. Such documents can be exchanged between the TEM and authorizing authority using the http or secure http (https) protocol, or any other communications protocol that can be made to work.

If the request is authorized, then one document is next accessed by the browser, and if the request is declined then an alternate document is accessed by the browser.

The appropriate document to be accessed, based upon the response to the request for authorization, may have been communicated to the TEM within a prior document accessed by the browser as part of its configuration.

Further, there can be multiple documents that could be accessed, where the one next accessed is dependant upon a results code contained in the response to said dispense authorization request. Additionally, the results code and other information contained in such a response can be made available to browser software on the TEM in a way that it can be substituted into the next page to be displayed, or used in processing the next page.

If the TEM fails to receive a response to a request for authorization within a certain period of time, then the software in the TEM can cause the browser to load a document where the URL of said document was supplied in a previous document. Again, a variable indicating that this "timeout" has occurred will be made available in the browser to control desired subsequent parts of that user transaction session.

In addition to or in replacement of authorization requests, it may be required in some jurisdictions by regulation or law or simply by convention, at least in certain circumstances, that the institution must be the owner of the TEM. This could occur when an institution wishes to use a TEM to conduct transactions, or possibly only when it wishes to conduct transactions involving items of value such as currency, prepaid phone cards, conventional postage stamps, coins, tokens, and the like.

This potential requirement could be accomplished by substantially simultaneously with the initiation of connection to the institution, leasing the said TEM to the said desired institution for the duration of the transaction session with said user, and substantially simultaneously with end of the session, terminating the said lease.

Alternatively, substantially simultaneously with the initiation of connection to the institution the said TEM is sold to the said desired institution, and substantially simultaneously with the reversion to wait state at the end of the session is repurchased by the prior owner.

In the case where the sale or lease is from the owner to the operator and then subleased or resold to the institution or a third party and then back from that institution or third party back to the operator and then back to the original owner, such arrangements might be accomplished by agency contracts or power of attorney relationships, options (puts and calls) to deal with various changes in control and/or ownership, or other well-known legal mechanisms available in various jurisdictions.

Since in a dynamically branded transaction execution system, there are a multitude of member institutions and a multitude of TEM owners, it is preferable to charge fees to the member institution based upon the use of TEMs by their customers. The system of this invention could track usage and account for and charge for use. If TEMs were to be leased to institutions for the duration of sessions, they could be charged a lease fee.

Where a TEM is purchased and resold for a session, the repurchase price could be calculated as the acquisition price less an amount equal to the charge for the transaction(s) conducted during said session, for example, rather than a "lease" charge of similar amount.

The revenue from the various fees, including the difference on sale and repurchase, could be distributed amongst the providers of the system and some or all of: the operator of the communication systems; the entity on whose premises the TEM is located; the entity that owns the TEM; the entity responsible for the maintenance of the TEM; and the operator of the routing and switching means.

The system can be made to track the usage of consumable items within the TEM including such items as paper, currency, coupons, general usage counters, ink, toner and the like, as well as other resource utilization such as screen display time, number of transactions, communications usage by time or volume, or otherwise, for billing, audit and maintenance purposes including predictive maintenance. One method of doing this is for the TEM to track its usage during each session and then at the end of the session transmit this information to the servers of the organization responsible for billing for the use of the system. This information could also be sent practically simultaneously to all properly interested parties so that they can perform their own reconciliation, audit and billing and other functions using that information. These other interested parties would include at least one of the owner of the TEM, the institution that conducted a transaction, the system's billing organization, the

operator of the routing and switching means, and the operator of the TEM. Subsets of the information could be provided as appropriate to preserve commercial confidentiality and user privacy. For example the maintenance operator for a TEM could be interested in knowing the total paper usage within a TEM so equipped but may not have a need to know which institutions accounted for what usage, or which users transacted with the TEM.

Alternatively, usage information could be stored in the TEM or elsewhere in the system for a period of time and then, periodically or upon request, communicated to the appropriate parties.

The system can differentially charge or credit its participants for each service provided, or can allocate various priority uses to TEMs at various times or locations. Additionally, the system may reallocate resources or may re-configure available TEM capabilities, or otherwise tailor the available transaction sets to balance resource utilization by Institutions and their users, and further, can differentially charge for its actions and services based upon usage, location, time, resource utilization and otherwise.

In addition, the system can accomplish or encourage optimum TEM and system utilization without restricting the branding performed by an institution by making information about the charges associated with any particular branding actions at any particular time and location available to the branding content (provided by the institution) immediately in advance of the content causing the configuration of the TEM, and at multiple and repeated points during the session whenever the branding content requests the then-current status, including causing some branding element to displayed, such that the branding content may make certain transaction types, data or options available only to selected users at selected times or locations, based upon that information and the branding content's embedded instructions dealing with that subject-matter.

The system may charge differently for various permutations of services and benefits provided, such as (but not limited to) the encryption and logging of certain types of transaction data, which might bear a higher charge than unencrypted or un-logged transactions or data.

It should be noted in the context of this disclosure that "lease", "leased", "sold", and "purchased" are to be understood in both the legalistic "ownership", "title" and "right to possession and use" sense as well as in the technical "temporary but exclusive use" sense. For example, in DHCP servers "leasing" IP addresses to client machines or network nodes to provide exclusive but temporary use within the served network of that IP address to that machine or node. Here, the meaning is that the TEM and perhaps the "circuit" (of operatively connected institution/branding/TEM via the router/switch communications means and the configuration means of the invention) may be considered owned or controlled in either legal or technical or both senses by agreement, acquiescence, consent, prior arrangement, convention, association, inference or other mechanism, such as to permit the transaction desired between user and institution(s) over the TEM if local laws or regulations of competent jurisdiction require that degree of ownership or control in order that the transaction be lawful and of enforceable effect. When speaking of "leasing" or "transferring" ownership or control, it is to be understood that leasing and transfer of ownership or control may be interchanged, where to do so would be sensible given the context and the understanding of a person skilled in the relevant art.

It was described previously how a portable device in operative connection to the TEM could be the source of identifying information necessary to begin a branded session on the TEM with an institution. In a further embodiment of the system the portable device could also be used to conduct all or part of the actual session with the institution, with the portable device using the TEM as a connection point to make use of the TEM's network connections in order to be able to communicate with the desired institution. A user could use the input capabilities, typically a set of keys or buttons, on the portable device to make entries and indicate selections. The member institution's branding could be displayed on the portable device to the extent appropriate to that device and as permitted or desired by that institution. All or a part of the branded transaction or provided transaction may be accomplished on the portable device or on the portable device and the TEM, dependent upon user requirements and user capabilities. Of course, privacy concerns would be dealt with in the accessibility or view-ability of information on these various devices to ensure optional user experience.

A number of users with portable devices might simultaneously use a TEM in this fashion. Further, these users of portable devices can be using the TEM simultaneously with a user using the TEM directly.

One approach to support conducting transmissions on portable devices, is for the TEM to contain one or more browsers where one browser accesses a first XML document at the URL associated with said desired member institution as indicated by the portable user and said document and any documents and files to which said document points contain the branding of said desired member institution, and said branding is presented to the user on the portable device.

Translation of the content to a format supported at the portable device can be done in a variety of ways:

a. the TEM can perform the translation or "clipping";
b. the member institution can provide a set of contents suitable for the interface of the portable;
c. the member institution can perform the translation or "clipping"; or
d. the processing and routing system can provide a service to do those things in (a) through (c) above.

A second approach to conducting transactions directly on portable devices is for the TEM to simply act as a network access point and data router so that the session at the transport level (e.g. TCP or WDP) is taking place between the portable and, as appropriate, the processing system and the desired institution. A second TEM with no network connection of its own could use wireless means to obtain its operative connections through another TEM which does have operative network connections for communication with member institutions and authorizing authorities.

A further embodiment of the multi-personality transaction system is in conjunction with a loyalty system or systems. The system can generate information that is useful to such loyalty systems. A user may present a loyalty card or similar indicia as discussed herein that will allow them to use the system to interact with the provider of that loyalty system for a variety of purposes including: seeing their account status; viewing transaction history; viewing points balance; seeing available awards or offers; requesting particular awards or merchandise; locating participating merchants.

The system as described herein can make use of Customer Relationship Management systems and can generate information that is useful for these systems. The system can capture and make data available to data mining applications. These activities could be limited to the extent necessary and formed in ways that are in accordance to the appropriate legal jurisdiction and in compliance with the agreements with the various participants.

Also anticipated is that the system may have information about a particular user that would be useful to an institution. The information could come from several sources including one or more of: a CRM system, a data mining system, history of past use by the user, information previously provided by user themselves (for example information entered by the user at an associated web site, described herein.), information obtained from other sources. This information may be made available to the institution in a way that allows the institution to tailor what they present to the user. This information may be made available in variables in the TEM in a way that they can be read by the content of the institution as it is executing on the TEM. Alternatively, it can be made available such that during the session the institution can make a query requesting this information and this information would be returned in the response to this query. The technological form of storing this information, querying it and responding to these queries could take many forms that will be evident to those skilled in the art. The methods could be by way of example but not limited to: LDAP, message queues, Java beans (TM Sun Microsystems Inc.), various middleware or APIs.

Another embodiment of the multi-personality transaction system is for advertising or other informational purposes. During "standby" mode, in a wait site, when the TEM is not being utilized by a user to perform a transaction, it will be configured to display content which is not necessarily provided by or for a member institution, and which is not "branding" content in the sense disclosed here. Rather, in standby mode, the TEM may be configured in accordance with instructions provided by means of the router/switch, which may be stored at the TEM, at the router/switch, or elsewhere on the system pending its retrieval by the TEM. Such standby mode configurations can include, by way of example, advertising for member institutions or others, information kiosk-style functionality such as merchant catalogue browser, location/map service, product demonstration information, product or service specifications, in-store location query and mapping response, coupon or other value item dispensing which does not require the identity of the user or of a user account, direction-giving, reference to other locations or services, passive or interactive other displays such as

games, contests, questionnaires or surveys, or the like. From the configured activities in standby mode available by operation of a dynamically branded TEM system as disclosed here, it may be seen that there are a variety of services the revenue from which the TEM owner, the member institutions, the router/switch provider and the network provider can share or otherwise deal with.

When a system-included TEM is used by a customer of a non-member institution, screens and other branding information in such a generic mode may not be specific to an individual institution, and the generic mode can still utilize the fundamental aspects of the dynamic branding system to increase the utility of the transaction session. In one example, an ATM deployer, merchant or the operator of the system could enable a user to express a language preference from a range of available choices, and the system can display all the "generic" functionality (without specific branding) in the language of the user's choice. Further, the system can record the preferences expressed by the user as entered either at the TEM or through some other means or at some other time, and recall those preferences to modify the TEM's configuration.

The system as described wherein can be used where, without identifying a desired institution of the user, said user may use a TEM as an information kiosk. This is done simply by making a choice of one of the selections available on the "idle" or standby screen of the TEM. The content for the various segments of information or services available on this kiosk mode can be stored within the TEM or may be stored on a server accessible over a network, as is appropriate for the nature, timeliness and size of the content and or the capabilities of the TEM. Some or all of these information kiosk selections can be made unavailable at times when the TEM is being heavily used or to otherwise optimize the TEM's use.

Another embodiment of the present invention, is in conjunction with users having a multiple of card-based or otherwise accessible accounts or relationships, such as financial institution, credit card, debit card, loyalty card, frequent flier card, discount card, and other accounts or relationships maintained by a variety of institutions, some of which may be member institutions.

It is proposed that, by operation of the configurable TEM system with router/switch, network, and configuration systems, a user could provide the user's information for more

than one user account (for example, swiping a card for each account), and that information (including, by example, an electronically replicable representation of the magnetic card medium's stored information) would be stored by the system such that, when desired, the user could make user's identity known (for example, swiping any of the cards for any of the stored accounts, or by providing other user identification such as an identity number or token issued by and recognizable to the system) to a system-enabled TEM and be provided with a listing of that user's accounts or relationship, from which listing the user could choose which account or relationship to proceed with to perform a transaction series.

It is preferred that no password or PIN information for any account would be stored on the system, such that the only component of the typical user-system transaction which would have been stored for future automated use (essentially by emulation of the information part of the transaction) would be the initial card-swipe (or similar) information providing step of the transaction, thus the security provided by the PIN system (or other equivalent) would not be compromised, although such an alternative is possible.

In one embodiment, the account inputting portion of the set-up of this "macro-account" would include the step of issuing a new card or other physical medium upon which the user's identity (useful to the system) would be issued. This new physical medium might be by way of mag-card, smart-card, bar-coded card, RF-enabled smart-card, or other token or device. Alternatively, a user might be issued a number or manually re-keyable or enterable indicia. Alternatively, a user might be measured in some biometric sense (such as voice-print, retinal scan, thumb or finger print, or other identifying way, or in some combination), which when recognized later would provide for display of a "pick-list" of enabled user accounts or institution relationships at a TEM.

In another embodiment, from the pick-list provided to the user, more than one user account might be chosen with which the user might interact. This would, for example, enable a traditional style of value withdrawal from a first account, the storage or buffering of the value withdrawn, and the subsequent deposit of the value to a second account or a plurality of other accounts. At some steps during this "macro-account" interactive function, there may be branding by the institution with whom each account is kept. The second account might consist of a variety of value recipients such as a cash withdrawal of a portion of the value, a bill-payment with a portion of the value, the printing of a ticket, receipt, coupon, voucher or

other thing of value in exchange for a portion of the value, the wiring of funds for a portion of the value, or the printing of a cashier's cheque or draft payable to a third party or to "bearer" or a traveler's cheque style of instrument for a further portion of the value. As can be seen, these examples and others, in many combinations and permutations, can serve as the basis of a new and improved use of a TEM suitably configured, to deal with the "unbanked" as well as the "multi-banked" end-user, in particular if the first thing of value is cash or some provable value instrument recognizable by the TEM for its receipt to the credit of the depositing user (or to the credit of the single anonymous transaction session).

The system could also allow value transfer to emerging payment systems such as:

- Paypal ----http://www.paypal.com
- e money mail ---- http://www.emoneymail.com/
- Payme ----https://www.payme.com/

In another embodiment, from the multi-account inter-account transaction display, two or mores users might transfer value from one account of one user to another account of another user. This might be accomplished by allowing a first user to enter a multi-account session by card-swipe, macro-account submission, or otherwise identifying the user and the desired account, and the desire to enter a multi-user multi-account session, and the subsequent entry of a second user's account and user identification to the system, with the other transaction steps being essentially as set out in the single-user inter-account value transaction.

As well as the macro identity, which can provide for the identification of a user to the system, and of that user's various accounts at member and non-member institutions, the system, method and apparatus described herein may also provide the capability at the TEM for a user to perform during a single transaction session a variety of transactions including the withdrawal from a user account at one institution and the subsequent deposit at that user's account at another institution (or another user's account at any institution), which may as well provide as a benefit the instant acceptance of the said deposit without any holding or clearance process or time delay by the recipient institution, by additional example, by guarantee of the system operator to the recipient institution of the funds or value, since said operator would have obtained authorization or cash from the institution from whose account the value was initially withdrawn.

In a further embodiment, the multi-personality transaction system could have a web site associated with it. The uses of this web site could include one or more of the following:

- A user enrolling themselves to the web site and related system (this may have to be completed at a TEM that provides additional user identification capabilities such as a signature pad, a camera to capture the users image, biometric id capability, depending upon the use).
- A user viewing and printing previous transaction conducted at TEMs in the system.
- A user setting and changing preferences for use when the user is using a TEM that is part of this system.
- A user placing certain restrictions on their information or its use.
- A user finding the location of publicly accessible TEMs including locating just the ones with a particular capability, such as signature pad or depository, that the user intends to use.
- A user enrolling and setting up a macro account (also known macro identity) as described herein.
- A user setting up transactions, including without limitation, purchases, large transfers, service cancellations, service enrolment, which require the user to later complete them by authorizing them when present at a TEM suitably configured for the level of authorization security needed for the particular type of transaction.

In a further embodiment of the system, a portable TEM can be used to setup a transaction that is meant to be completed at a later time at another TEM which has more capabilities. For example, a user may request to receive cash or to deposit an item when they are at a TEM that does not have the ability to dispense cash or receive such deposit of a physical item. The user can be provided with a receipt or code or other means such that later when the user is at a TEM that did have requisite cash dispensing or deposit taking capability they could use this receipt or code or other means to receive the cash or otherwise complete the transaction. Another example of why a user may be required to complete a transaction at a TEM with additional capability, is that an institution may wish to finalize a transaction only when additional means of identification is provided such as by way of capturing an image of the user, signing and then depositing a form printed on the TEM, entering a signature on a

signature pad, authenticating the user by some biometric means, or authenticating the user by other means.

Referring to Figure 1, a dynamically branded transaction execution system 8 includes a plurality of transaction execution machines, hereafter referred to as TEMs 10, connected to a processing and routing system 12. The switch system 12 interconnects the TEMs 10 with a plurality of member institutions 14, including but not limited to financial institutions such as banks and brokerage houses, and non-financial institutions such as merchant organizations and individual outlets thereof. A database 13 can be used by the TEMs 10 for dynamic branding and other required information. Alternatively, the router 12 may also have access to a database 13a containing the branding information. This however, depends on the latency and bandwidth of the link to the TEM 10.

The TEM 10, shown in Figure 2, includes an identification device 16 (preferably a card reader), a user interface 18, and a material device 20 for providing and optionally receiving materials to and from a customer (not shown) respectively, such as but not limited to cash withdrawals and deposits, cheques, coupons cards or stored value cards, a plurality of transactions requiring a proximity of physical media or storage devices to the system 8, product information and advertising, plus any other transactions and communication to the maximum extent permitted by the technology and capability of the member institutions 14 to which the balance of system 8 is ultimately connected. The plurality of transactions may not necessarily involve a transfer of a physical entity, for example money could be transferred to a stored value card. A data storage module 15 may be used to keep on site transaction records and may also be used to store the identity and/or functionality of the user interface 18 (i.e. dynamic branding elements), defined by the member institutions 14.

The user interface 18 of the preferred embodiment, shown in Figure 3, is used to communicate desired information between the customer using the TEM 10 and any of the member institutions 14 sharing the transaction execution system 8. Different forms of communication include a display 22 and a keypad, touch pad 24 or touch screen, or any combination of user input devices known in the art for the entering of numerical information, non-numerical information, and the selection of presented options, including by measurement of user biometrics at or available to the TEM. In addition, an audio system 26, a video system 28, and/or a keyboard 30 may also be included if desired. The user interface 18

facilitates the dynamic branding of the TEM 10 with the identity and or functionality defined by the member institutions 14 or other businesses at any given time. Multiple displays may be used in the TEM 10, some of which may be dedicated as a static sign similar to those in conventional captive ATMs.

In operation of the transaction execution system 8, the user's desired institutions, is first identified based on identification information obtained from the user by the identification device 16, which in the case of a card reader is accomplished by entering a card in the device 16. The TEM 10 uses the identification information to connect by the switch system 12 to the member institutions 14 thus coupled. The user interface 18 is subsequently modified according to identity and/or functionality to a full service transaction machine, dynamically branded such that the TEM 10 behaves as though it were owned by the member institution 14 for the duration of the customer's transaction. The branded TEM 10 preferably provides the full service desired by that institution for its customers. Once the customer is finished a transaction session, the TEM 10 can revert to a standby mode, or wait state, and is ready for interaction with another customer. During this standby mode a user may, with or without providing identification or being identified, use the TEM 10 as an information kiosk, if desired.

The selected member institutions 14 have control over the behavior (or functionality) and presentation of the TEM 10 for the duration of use of the TEM 10 by their customers. This is accomplished by the system 8, which is capable of providing for the duration of the interaction either a full functionality connection between the selected member institution 14 responsive to information from the customer, and the TEM 10, or by providing the desired functionality on behalf of the selected member institution 14. In reference to the above-mentioned full functionality, it is dependent on whether the participating member institution 14 chooses to take advantage of all of the available capabilities offered by a particular TEM 10, or a smaller subset thereof.

In an additional embodiment, the customer may through the user interface 18 create a macro account which relates the user to two or more institutions 14 of which the user is a customer or participant. The user may subsequently conduct a macro account transaction whereby the customer can access a plurality of accounts from different member institutions 14 as though each of the accounts were all held at one combined institution. The user can

conduct transfers of value between an account at one institution and a second account at a second institution. The term macro account and macro identity are interchangeable herein.

Another embodiment of the present invention is a macro function that allows transactions between cards and/or accounts belonging to different people, such as between spouses and friends. It is not necessary that both people be at the same TEM at the same time.

In a further embodiment, shown in Figure 4, a plurality of external devices 30 may be connected to the execution system 8. The devices 30 can include but are not limited to a portable TEM such as a cell phone, a lap top, or a personal computing device, a third party transaction system, or the like. The overall character of the dynamic branding of the external device 30, where it is a TEM 10, as well as the type and the number of possible transactions thereon is only limited by the capabilities of the user interface 18 of such device 30. A connection 32 between the device 30 and system 12 is accomplished preferably by a modem, wireless connection, or the like. The connection 32 can also be made via the internet, private intranet, through many associated networks, or any other communications device, or combination of devices, capable of facilitating the required data transfer. This embodiment allows the user to conduct a plurality of transactions from a location chosen by the customer on an interface controlled and branded at the direction of a member institution 14.

In another embodiment, shown in Figure 5, the execution system 8 contains TEMs 10 connected by the router 12 to a plurality of traditional financial transaction networks 32. The networks 32 and device 30 in turn are connected to member financial institutions 14A. This arrangement provides for the execution system 8 to be connected to already existing or newly established networks 32, rather than directly to individual member institutions 14A, to effect dynamically branded transactions on TEMs 10 with selective numbers of such institutions 14A.

In a further embodiment shown in Figure 6, a number of TEMs 10A, 10B, 10C, 10D and 10E are operatively connected by the routing and processing system 12 to member institutions 14A, 14B and 14C. The TEMs 10A, 10B and 10C are connected to the routing and processing system 12 by means of a network 40. Additional TEMs 10D and 10E are on a differently configured network 45 and are preferably connected to the same routing and

processing system 12. The routing and processing system 12 is further connected by means of a third network 50 to member institutions 14A and 14B and to member institution 14C by means of the a fourth network 55. The routing and processing system 12 can perform routing and, as necessary, translation between TEMs 10A, 10B and 10C on network 40, where it is for example a wireless WAP based network, and the member institutions 14A, 14B and 14C on network 50 which is for example an IP based intranet. It should be noted that more than one router 12 can be used in the system 8, if desired.

In a separate example, the same Figure 6 can be used to illustrate that if network 45 were an IP based network and the network 50 were also an IP based network, the networks are the same type and data flowing between one TEM 10E and one member institution 14B would merely need to be routed and may not need to be translated. If the database 13A contained the table for relating institution identifiers to member institution branding locators being URLs, then TEM 10E could provide this data in a request to the routing and processing system 12 which would respond with the URL for the branding of member institution 14B, which could be at that same member institution 14B. The session between 10E and 14B would then proceed where only the packet based routing capability of 12 would be used during the session. However, if that same TEM 10E was to begin a session with member institution 14C, which can only perform transaction by means of an network 55 of a different type, by way of example only in a legacy consortium system using ISO 8583 messages over an X.25 network, its branding could be served by the routing and processing system 12and the session would proceed as follows. The TEM 10E would send a request to the routing and processing system 12 containing the identification for member institution 14C. The routing and processing system 12 would respond with a URL, which for member institution 14C's branding is in this example located within storage at router 12. The TEM 10E would then begin the session with router 12 and router 12 would, where necessary, convert transaction requests to ISO 8583 and send them via X.25 on network 55 to institution 14C. Responses from member institution 14C received over network 55 by system 12 would be translated to XML over TCP/IP to be sent over network 45 to TEM 10E.

In order for the operation of the TEM 10 to be integrated with branding content supplied by a desired institution 14, there must be a device for the inputs made by the user on the TEM 10 to interact with such content. Since many TEMs 10 lack a full keyboard and lack a pointing device such as a mouse, additional devices should be supported. Most TEMs

10 will have a numeric keypad of some sort. Entries made on this keypad can through software be made to appear to a browser operating within the TEM 10 as if they had been entered on a regular keyboard. Likewise, touches on the touch screen 22 on the TEM 10, if it has one, can through software be made to appear to the browser as if the user had made a mouse click at that location.

Where the TEM 10 does not have a numeric keypad but does have a touch screen 22, an image of a keypad or a full keyboard can variably appear on the touch screen 22 and the user's touch over an image of the key or button can cause, in software, the correct key code to be sent to the browser as if it had been entered on a conventional keypad or keyboard of a general purpose computer, if so desired.

Many TEMs 10, particularly ATMs, cash dispensers and other banking machines, have additional physical buttons installed to assist in conducting transactions. Often, the use of these buttons is not fixed, while the location is fixed alongside the display 22 of the TEM 10, and their variable use is indicated by graphics or text on the display 22, both of which variably change in a co-ordinated fashion through the user's session. This system 8 provides a method whereby a URL may be associated with each such button at each step during a transaction or session. When a user presses the physical button, an associated URL will be used as if that URL was a link for the associated graphic or text that was displayed beside the button that the user had selected, as if the user had made a mouse click or touch on a touch screen 22 to effect that selection.

It may be desirable to relate URLs to physical buttons. The physical buttons would be associated with URLs and then used with branding content. Somewhat similarly, shown in Figure 7, it may be desirable for an institution to use a display area of the TEM 10 to emulate an interface of a particular device. One example use is to use a modern TEM 10 to emulate an older TEM 10, such as emulating an old style ATM and its physical side buttons. The complete TEM 10 contains a touch screen display 22. A portion of the display 22 is used to form a virtual display 120 and the balance of the display 22 is a skin 130. On the skin 130 are side buttons 140, which are an emulation of buttons on the real device being mimicked. The selected institution's content and branding information is displayed within the virtual display 120. On the skin 130 may be representations of physical features of the device being emulated such as buttons 140. Instructions within an institution's branding can specify what

URL is to be associated with a particular area on the skin 130. The instructions can specify any number of these areas and for each their associated URL. When that area of the skin 130 is touched, the document at the associated URL will be processed, thereby controlling the flow of the session. Instructions within the branding of the selected institution 14 are able to specify that a particular skin 130 is to be used at the beginning or partway through a session. Similarly, instructions can turn off the skin 130 so that the entire display 22 is taken up with the content of the selected institution 14. This method allows the member institutions 14 to use the same content on modern touch screen devices that has already been developed for older devices with physical buttons.

In a further embodiment, also represented in Figure 5, the execution system 8 is connected to one or more Authorizing Authorities 31. Each Authorizing Authority is responsible for managing the items of value in one or more TEMs 10. A given type of item of value (for example cash) in a given TEM 10 is typically managed by the Authorizing Authority 31. The TEM 10 can receive authorization for transactions involving items of value either by a connection from the Authorizing Authority 31 to the relevant institution, or by using the connections that the system router 12 has with all parties.

The branding content within the TEM 10 initiates a transaction request for the dispensing of an item of value from the TEM 10. The TEM 10 determines that the transaction requires approval by an Authorizing Authority 31. The TEM 10 creates a message based on the transaction request and sends the message to the system router 12. The system router 12 determines which Authorizing Authority 31 is responsible for approving transactions of that type from that specific TEM 10. The system router 12 translates the message if necessary to a format appropriate to the Authorizing Authority 31, and sends the message to the Authorizing Authority 31. The Authorizing Authority 31 determines which institution 14 with which to authorize the transaction.

The Authorizing Authority 31 can have a direct or indirect connection to the institution 14A, and the Authorizing Authority 31 may translate the request if necessary to a message and/or format appropriate to the institution 14A and send the request to the institution 14A. The institution 14A determines whether the request will be accepted, modified, or denied. The institution 14A sends the response back to the Authorizing Authority 31. The Authorizing Authority translates the response if necessary, and in turn

accepts, accepts with modifications, or denies the transaction, sending a response to the system router 12. The system router 12 translates the response if necessary, and sends the response to the TEM 10.

In yet another example, as shown in Figure 5, instructions within the branding content within the TEM 10 can initiate a transaction request for the dispensing of an item of value from the TEM 10. The TEM 10 determines that the transaction requires approval by an Authorizing Authority 31. The TEM 10 creates a message based on the transaction request and sends the message to the system router 12. The system router 12 determines which Authorizing Authority 31 is responsible for approving transactions of that type from that specific TEM 10. The system router 12 translates the message if necessary to a format appropriate to the Authorizing Authority 31, and sends the message to the Authorizing Authority 31. The Authorizing Authority 31 determines which institution with which to authorize the transaction.

The Authorizing Authority 31 translates the request if necessary to a message and/or format appropriate to the system router 12, and sends the request to the system router 12 directed to the institution 14A. The system router 12 translates the request if necessary to a message and/or format appropriate to one of the plurality of financial transaction networks 32 that connect directly or indirectly to the desired institution 14A. The transaction network 32 routes the request to the institution 14A. The institution 14A determines whether the request will be accepted, modified, or denied. The institution 14A sends the response back to the financial transaction network 32. The financial transaction network 32 sends the response to the system router 12 directed to the Authorizing Authority 31. The system router 12 translates the response if necessary to a message and/or format appropriate to the Authorizing Authority 31. The Authorizing Authority 31 translates the response if necessary, and in turn accepts, accepts with modifications, or denies the transaction, sending a response to the system router 12 directed to the initiating TEM 10. The system router 12 translates the response if necessary, and sends the response to the TEM 10. This alternative provides a way to reduce or eliminate the multiple connections between many or every of the plurality of Authorizing Authorities 31 and the plurality of financial transaction networks 32 and institutions 14.

In a further embodiment, the dynamically branded transaction execution system 8 is used by virtual institutions, such as virtual banks and or merchant organizations that do not have traditional brick-and-mortar locations. This allows these virtual institutions to have, in effect, multiple TEMs 10 provided by the system 8, tailored to the needs of the individual virtual institutions.

In an additional embodiment, the customer may through the user interface 18 create a macro account which relates the user to two or more institutions 14 during the same transaction session, of which the user is a customer or participant. The user may subsequently conduct a macro account transaction whereby the customer can access a plurality of accounts from different member institutions 14 as though each of the accounts were all held at one combined institution. The user can conduct transfers of value between an account at one institution and a second account at a second institution. The term macro account and macro identity are interchangeable herein.

A macro function can allow transactions between cards and/or accounts belonging to different people, such as between spouses and friends. It is not necessary that both people be at the same TEM 10 at the same time.

Referring to Figure 8, the branding might be sequentially done, or the representation of the transaction on the TEM's display (22) might include sub-components (310, 320, 330) of the display (22) to the user which were branded, surrounded or contextually inter-related by a representation of a multi-brand, multi-account transaction scheme (such as –in a metaphorical sense- by animated arrows (310) or other indication of "movement" of "value representations" from one "account location" (320) to another (330) in Drawing Fig. 8.

The design and behavior of the user interface 18 may be tailored to the needs of the customer. This may be done by institutions 14 or also by the routing system 12 or by the TEM 10. The system 8 may also provide tailoring for macro users and generic users in addition to the tailoring supplied by member institutions 14. Examples of this additional system tailoring include: a tailored system identity that could be one, or a combination of more than one of the user's identities with individual member institutions 14; the case where the system 8 provides information about itself or its member institutions, to any person who is not known at that stage to be a customer of any member institution 14.

The router system 12 that interconnects the TEMs 10 and the member institutions 14 can support several ownership models, which may be appropriate in certain jurisdictions to meet regulatory requirements. The ownership models supported include by way of example only:

a. a selected number of the automated TEMs 10 is owned by an operator and is made available to the member institutions 14 on a contractual basis with either a charge for time used and/or per transaction;

b. a selected number of the automated TEMs 10 is owned by the operator when idle and is sold to the member institution 14 at the time their customer is identified as being at the TEM 10 ready to do the transaction. The TEM 10 is then sold back to the operator at the end of the interaction with that customer;

c. a selected number of the TEMs 10 is owned by the operator when idle and is leased to the member institution 14 at the time their customer is identified as being at the TEM 10 ready to do the transaction. The lease ends at the end of the interaction with that customer; and

d. a selected number of the TEMs 10 is owned by a third party, such as a merchant, and as in the ownership models 2 and 3 above, is either sold or leased to either the operator or the member institution 14 for the duration of the transactions.

All of the above examples fall under a more generic ownership model of contractual access to provide a service, and temporary ownership.

It should be noted that one benefit of the present invention is that member institutions 14 can provide customer access to full service TEMs 10 over a large shared network of dynamically branded TEMs 10, while preserving the ability of each member institution 14 to control, brand, and benefit from their customers interaction with the system 8. The system 8, in addition to financial transactions, can also be used with other types of transactions including the issuing of royalty coupons, product information, and the gathering of data for loyalty or other marketing cross-marketing or commercial purposes. This customer data, collected by specific member institutions 14, or by the routing system 12, could be shared with other member institutions 14, or others, if desired.

Although the invention has been described with reference to certain specific embodiments, various modifications thereof will be apparent to those skilled in the art without departing from the spirit and scope of the invention as outlined in the claims appended hereto.